IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	09/855,385	Confirmation No.:	8937
Applicant(s):	Dorenbosch, Jheroen P., et al.	Examiner:	Mehrpour, Naghmeh
Filed:	May 15, 2001	Docket No.:	PF02177NA
TC/A.U.:	2617	Customer No.:	20280
Title:	INSTANT MESSAGE PROXY FOR CIRCUIT SWITCHED MOBILE ENVIRONMENT		

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. § 1.131

Sir:

The following Declaration and any attachments are to establish conception in the United States of claimed subject matter in the referenced patent application and diligence to the filing of the referenced patent application on May 15, 2001, from a date prior to the effective date of U.S. Patent Application Publication No. US2002/0147988A1 to Masahiro Nakano, filed in the United States on April 9, 2001, and relied upon by the Examiner to support rejections under 35 U.S.C. 103(a) in the Office Action dated July 11, 2006.

In support of this declaration, we, Jheroen P. Dorenbosch of Paradise, Texas, and Kevin C. Mowry of Irving, Texas, declare and sayeth the following:

That we conceived the claimed subject matter of the referenced patent application in the United States before April 9, 2001, which is prior to the effective date of United States Patent Publication No. US2002/0147988A1 (Nakano), in the course of employment by Motorola Inc., the assignee of the instant application by virtue of an assignment duly recorded on the Official record of the United States Patent & Trademark Office, REEL/FRAME 011815/0457.

That the claimed subject matters of the referenced patent application were the subjects of written invention disclosures prepared and executed after conception on October 24, 2000; October 27, 2000; and December 5, 2000; and that the invention disclosures were subsequently submitted to a Patent Committee of Motorola Inc., the assignee of record for consideration and assignment to a patent attorney for preparation and filing of a patent application.

That each of the dates redacted from the disclosure attached hereto is prior to the effective dates of United States Patent Publication No. US2002/0147988A1 (Nakano).

That on information and belief a patent application was prepared and filed, in due course upon, in the United Stated Patent Office on May 15, 2001, by or on behalf of Motorola Inc.

That all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

JHEROEN P. DORENBOSCH DATE 10/18/06

STATE OF Texas)
ss:
COUNTY OF Tarrant

The undersigned Notary Public in and for the County and State aforesaid, do hereby certify that Jheroen P. Dorenbosch whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that they signed, sealed and delivered the instrument as their free and voluntary act and deed for the uses and purposes therein set forth.

Given under my hand and notarial seal this 18 day of October, 2006.

My commission expires: July 22, 2007

RAUL SORIA III
Notary Public, State of Texas
My Commission Expires
July 22, 2007

Notary Public Signature

RAUL SORIA III
Printed Name of Notary Public

Kevin C. Mowry DATE

STATE OF)
ss:
COUNTY OF)

The undersigned Notary Public in and for the County and State aforesaid, do hereby certify that Kevin C. Mowry whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that they signed, sealed and delivered the instrument as their free and voluntary act and deed for the uses and purposes therein set forth.

Given under my hand and notarial seal this _____ day of _____, 2006.

My commission expires:

Notary Public Signature

Printed Name of Notary Public

Wireless Instant Messaging STD

MOTOROLA FORT WORTH

Utility Patent Disclosure

UTILITY Disclosure For Patent Committee Review

Submitted Pursuant To Employment Agreement

MOTOROLA PATENT COMMITTEE

Rev. 0.1 12/13/99

Intellectual Property Dept. Use Only

Discl. # PF2177US

Discl. Date Committee Action 10-25-00

THIS SECTION TO BE COMPLETED BY INVENTOR(S)

1. Name of Invention: Store and forward mechanism for Instant Messaging
2. Documentation Date: Oct 24, 2000
   (Attach log sheets, drawings, etc., to support the earliest date you documented your idea.)
3. Whom did you first tell about your invention?
   Name: xxx Date: xxx
4. Is this disclosure being submitted as an Ornamental Design Disclosure? Yes/No NO
   If YES, please attach a completed Ornamental Design Disclosure Form along with this disclosure.
5. What problem is solved by this invention? (Attach additional sheets if necessary.)
   IM utilizes a best-effort delivery mechanism. If the client is available the message is delivered, otherwise the message is dropped. In a mobile environment, the client may be temporarily out of service. What is the appropriate store and forward mechanism for IM that accounts for temporary unavailability, yet maintains the near real-time chat aspect that defines IM?
6. Identify related technology. (Attach additional sheets if necessary.)
   Email is the extreme case, in which clients log in and "pull" messages.
7. Describe the invention, and how it solves the problem(s) in a way not accomplished before. Attach additional sheets describing the invention in detail.
   See attached.

THIS SECTION TO BE COMPLETED BY ENGINEERING MGR OR HIGHER

1. Product invention is to be used on.(If a process, name the 1st product the process is to be used on.) n/a
2. This product will be (has been) offered for sale, quoted to a customer, or shipped. Yes/No NO If YES, indicate the earliest date any of these will (have) occur(red). xxx
3. This invention is to be(has been) disclosed outside Motorola: Yes/No NO
   If YES, indicate the date xxx and the other party. xxx
4. Was a non-disclosure agreement in place covering the admitted disclosure? Yes/No xxx
5. Name of Engineering Manager (or higher) who attests to the accuracy of this section:
   Typed: xxx Steven E. Trine (817)245-2572
   Phone: xxx Signature: Steven E. Trine Date: 10/24/2000

ALL BLANKS MUST BE COMPLETED AND ALL ADDITIONAL SHEETS MUST BE SIGNED & DATED BY ALL INVENTORS AND TWO WITNESSES

MOTOROLA FORT WORTH

Utility Patent Disclosure

Primary Inventor:

Last Name:	First Name:	Middle Name:	Social Security #	Commerce ID #
~~Mowyr~~ Mowry	Kevin	Curtis	519-08-8038	10129073

Home Address: Street;	City;	State;	Zip;	Citizenship:
9703 Windy HollowDrive	Irving	TX	75063	USA

Dept. #:	Office Phone #:	Location Code:	MailStop:	Shift:	Status:	Employee Immediate Supervisor:
NS504	817.245.2695	TX72	S147	A		Dwight Smith

INVENTOR'S FULL SIGNATURE — DATE: 10/24/00

Inventor:

Last Name:	First Name:	Middle Name:	Social Security #	Commerce ID #
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Home Address: Street;	City;	State;	Zip;	Citizenship:
XXX	XXX	XXX	XXX	XXX

Dept. #:	Office Phone #:	Location Code:	MailStop:	Shift:	Status:	Employee Immediate Supervisor:
XXX	XXX.XXX.XXXX	XXXX	XXXX	X	XXX	XXX

INVENTOR'S FULL SIGNATURE — DATE

Inventor:

Last Name:	First Name:	Middle Name:	Social Security #	Commerce ID #
XXX	XXX	XXX	XXX-XX-XXX	XXXXXXXX

Home Address: Street;	City;	State;	Zip;	Citizenship:
XXX	XXX	XXX	XXX	XXX

Dept. #:	Office Phone #:	Location Code:	MailStop:	Shift:	Status:	Employee Immediate Supervisor:
XXX	XXX.XXX.XXXX	XXXX	XXXX	X	XXX	XXX

INVENTOR'S FULL SIGNATURE — DATE

WITNESS NAMES & SIGNATURES:

The witnesses, in signing this form, attest to the fact that they understand the invention.

WITNESS NAME (PRINTED or TYPED)	PHONE	WITNESS SIGNATURE	DATE
W. Garland Phillips	52388		10/24/00
WITNESS NAME (PRINTED or TYPED)	PHONE	WITNESS SIGNATURE	DATE
SOREN THOMSEN	5-2316		10/24/00

MOTOROLA FORT WORTH

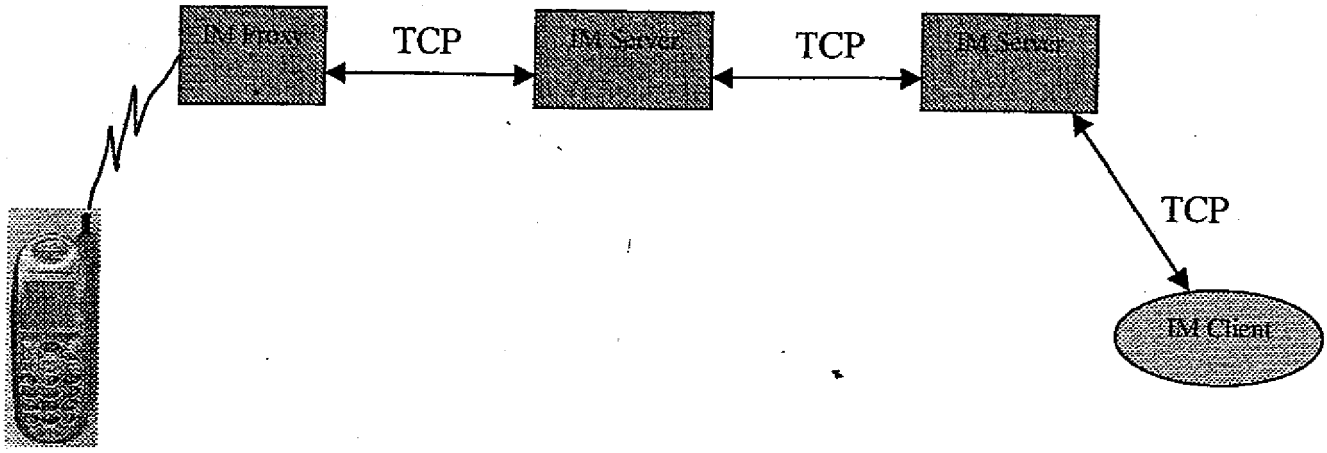
Utility Patent Disclosure

Problem Description

IM utilizes a best-effort delivery mechanism. If the client is available the message is delivered, otherwise the message is dropped. In a mobile environment, the client may be temporarily out of service. What is the appropriate store and forward mechanism for IM that accounts for temporary unavailability, yet maintains the near real-time chat aspect that defines IM?

Proposed Solution

The IM Proxy registers with an IM server on behalf of a mobile client. It receives instant messages and sends them over the air to the mobile client. Instant messages sent from the mobile client go through the IM proxy to the recipient.



The IM Proxy maintains the client's availability status. That is, when the use starts the IM client, the proxy reflects the AVAILABLE status. When the user manually changes status, e.g. to OFFLINE, the proxy reflects that. The user's buddies use the client status to determine if the user can participate in a chat session.

The proxy will not know if the client is roaming or out of service, because the client will not have the opportunity to register a change in status with the proxy before dropping out of service. In this case, the proxy will only know the client is offline when an instant message comes in and the proxy tries to send that message to the mobile client.

Normal IM behavior would suggest that the message be dropped in this scenario, however the mobile client may simply be going in and out of service because the user is driving down the freeway. A preferred behavior would be for the proxy to resend the message a programmable number of times before dropping the message. After dropping a programmable number of messages, the proxy should automatically change the client status to OFFLINE so the user's buddies will know the user is no longer receiving messages.

The number of retries would likely be based on system latency. The number of dropped messages (used to determine an automatic status change) would probably be provisioned for each user, or class of users, based on network reliability, location, usage habits, etc.

Signatures

Inventor	10/24/00 Date	Witness	10/24/00 Date
Inventor	Date	Witness	10/24/00 Date
Inventor	Date		

MOTOROLA FORT WORTH

Utility Patent Disclosure

UTILITY Disclosure For Patent Committee Review

Submitted Pursuant To Employment Agreement

MOTOROLA PATENT COMMITTEE

Rev. 0.1 12/13/99

Intellectual Property Dept. Use Only	
Discl. #	PE 2181 NM
Discl. Date	
Committee Action	10-30-00

THIS SECTION TO BE COMPLETED BY INVENTOR(S)

1. Name of Invention: Message bundling to optimize IM in circuit switched environment
2. Documentation Date: Oct 27, 2000
   (Attach log sheets, drawings, etc., to support the earliest date you documented your idea.)
3. Whom did you first tell about your invention?
   Name: Soeren Thomsen Date: Oct 26, 2000
4. Is this disclosure being submitted as an Ornamental Design Disclosure? Yes/No No
   If YES, please attach a completed Ornamental Design Disclosure Form along with this disclosure.
5. What problem is solved by this invention? (Attach additional sheets if necessary.)
   In a circuit switched cellular network, the mobile IM client must establish a connection with the IM server (or proxy) to send and receive messages. It is cost prohibitive to maintain an open connection for the duration of the IM chat. A mechanism is needed to optimize message retrieval for a circuit switch network such that a connection is established only when messages are available for retrieval.
6. Identify related technology. (Attach additional sheets if necessary.)
   xxx
7. Describe the invention, and how it solves the problem(s) in a way not accomplished before. Attach additional sheets describing the invention in detail.
   See attached.

THIS SECTION TO BE COMPLETED BY ENGINEERING MGR OR HIGHER

1. Product invention is to be used on.(If a process, name the 1st product the process is to be used on.) xxx
2. This product will be (has been) offered for sale, quoted to a customer, or shipped. Yes/No xxx If YES, indicate the earliest date any of these will (have) occur(red). xxx
3. This invention is to be(has been) disclosed outside Motorola: Yes/No xxx
   If YES, indicate the date xxx and the other party. xxx
4. Was a non-disclosure agreement in place covering the admitted disclosure? Yes/No xxx
5. Name of Engineering Manager (or higher) who attests to the accuracy of this section:

Typed: Steven Trine
Phone: 817-245-2572 Signature: Steven E. Trine Date: Oct. 30, 2000

MOTOROLA FORT WORTH

Utility Patent Disclosure

Primary Inventor:

Last Name:	First Name:	Middle Name:	Social Security #	Commerce ID #
Mowry	Kevin	Curtis	519088038	10129073

Home Address: Street;	City;	State;	Zip;	Citizenship:
9703 Windy Hollow Drive	Irving	TX	75063	USA

Dept. #:	Office Phone #:	Location Code:	MailStop:	Shift:	Status:	Employee Immediate Supervisor:
NS504	817-245-2695	TX72	S147	A	Full	Dwight Smith

INVENTOR'S FULL SIGNATURE [signature] DATE 10/27/00

Inventor:

Last Name:	First Name:	Middle Name:	Social Security #	Commerce ID #
XXX	XXX	XXX	XXX-XX-XXX	XXXXXXX

Home Address: Street;	City;	State;	Zip;	Citizenship:
XXX	XXX	XXX	XXX	XXX

Dept. #:	Office Phone #:	Location Code:	MailStop:	Shift:	Status:	Employee Immediate Supervisor:
XXX	XXX.XXX.XXXX	XXXX	XXXX	X	XXX	XXX

INVENTOR'S FULL SIGNATURE DATE

Inventor:

Last Name:	First Name:	Middle Name:	Social Security #	Commerce ID #
XXX	XXX	XXX	XXX-XX-XXX	XXXXXXX

Home Address: Street;	City;	State;	Zip;	Citizenship:
XXX	XXX	XXX	XXX	XXX

Dept. #:	Office Phone #:	Location Code:	MailStop:	Shift:	Status:	Employee Immediate Supervisor:
XXX	XXX.XXX.XXXX	XXXX	XXXX	X	XXX	XXX

INVENTOR'S FULL SIGNATURE DATE

WITNESS NAMES & SIGNATURES:

The witnesses, in signing this form, attest to the fact that they understand the invention.

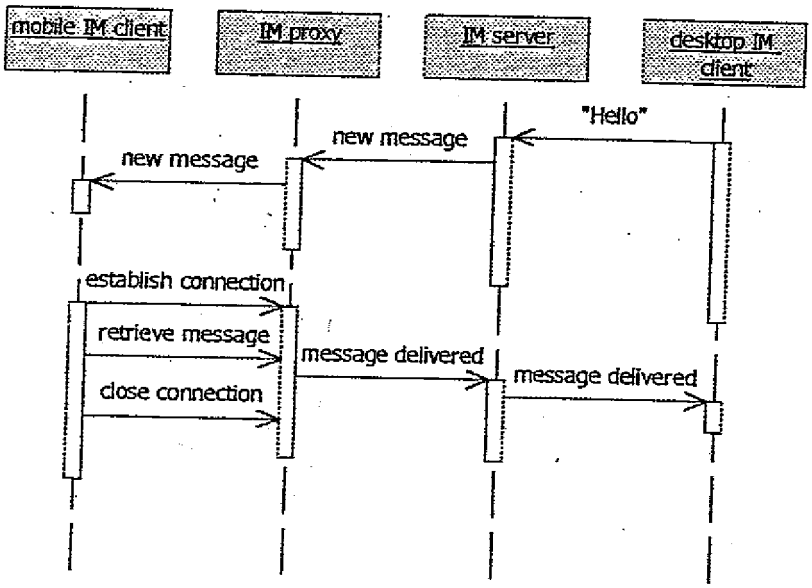
WITNESS NAME (PRINTED or TYPED)	PHONE	WITNESS SIGNATURE	DATE
N. Garland Phillips	52358	[signature]	10/27/00
WITNESS NAME (PRINTED or TYPED)	PHONE	WITNESS SIGNATURE	DATE
Soren Thomsen	52316	[signature]	10/27/00

MOTOROLA FORT WORTH

Utility Patent Disclosure

Proposed Solution

In a mobile IM environment, a proxy registers with the IM server on behalf of the mobile IM client. The proxy provides the current presence information of the mobile client to other IM users. The proxy also notifies the mobile client when messages are available for download. In a circuit switched cellular network, the message retrieval would look something like this:



In a circuit switched cellular network, there is considerable delay in setting up a connection and it is cost prohibitive to maintain an open connection for the duration of the chat. To address these problems, the IM proxy could bundle the messages so the user only needs to establish a connection when there are multiple messages to be downloaded, or when a message has been queued for a certain amount of time. So we have two scenarios:

Scenario 1

- The mobile user is in a chat session with several friends.
- The friends send three messages that are queued by the IM proxy.
- The friends immediately send five more messages.
- The IM proxy exceeded its limit of five messages so it notifies the mobile user that messages are available
- The mobile user establishes a connection and retrieves the messages

Signatures

Inventor Date 10/27/00

Inventor Date

Inventor Date

Witness Date 10/27/00

Witness Date 10/27/00

MOTOROLA FORT WORTH

Utility Patent Disclosure

Scenario 2

- The conversation is starting to die down.
- The friends send three messages
- After two minutes, no more messages arrive.
- The proxy time limit is exceeded so it notifies the mobile user that messages are available
- The mobile user establishes a connection and retrieves the messages

The number of messages to be queued prior to notification and the time limit for message storage would be configurable in the proxy. They would probably be provisioned on a per-user basis based on the cost and latency that the user is willing to incur.

The latency added by this approach would need to be indicated to the senders to set their expectations. This indication, likely a visual one, is being addressed in a separate disclosure.

Signatures

Inventor	10/27/00 Date	Witness	10/27/00 Date
Inventor	Date	Witness	10/27/00 Date
Inventor	Date		

MOTOROLA

Security Classification
Motorola Confidential Proprietary
(When Completed)

OF COPIES NEEDED
AFTER A # IS ASSIGNED ____

MOTOROLA PATENT COMMITTEE

PAGING PRODUCTS GROUP
PATENT DISCLOSURE

Rev. P 6/23/00 SUBMITTED PURSUANT TO EMPLOYEE AGREEMENT

INTELLECTUAL PROPERTY DEPT. USE ONLY
DISCLOSURE NO. PF 2863 NA
DATE 12-6-00
PATENT COMMITTEE ACTION

THIS SECTION TO BE COMPLETED BY INVENTOR(S)

1. Name of invention:
   Smart Bulk Download for IM
2. Documentation Date:
   this disclosure
3. Whom did you first tell about your invention? Name: *Kevin Mowry* Date: *11/29/2000*
4. Is this disclosure being submitted as a Design disclosure? Yes___ No√___
5. What problem is solved by this invention?
   Bulking up IM unacceptably slows down IM between a small number of participants
6. What is the closest known technology?
   PF02181NA Message bundling to optimize IM in circuit switched environment
7. What is this invention?
   The invention adds smarts to the IM Proxy/Server to only bundle IM messages when there is a high message rate and there are a large number of participants.

THIS SECTION TO BE COMPLETED BY AN ENGINEERING OR PRODUCT MANAGER (or higher) ONLY

Product to be used in/on: (If a process, name the first product the process was/is to be used on.)
IM infrastructure coupled to wireless infrastructure

Has/Is/Will this product been/being/be offered for sale? Have products incorporating this invention been described, quoted, or demonstrated to a customer? Have orders been accepted for the product? Explain the circumstances.)
Not offered for sale yet.

If so, when was/will the first offer for sale of a product incorporating this invention (be) made?
Date: *NA*

When is the estimated ship date? *NA*

When was/will the first disclosure outside of Motorola (be) made?

How will the disclosure be made (state title and date of publication, if any) and to whom?

Was a non-disclosure agreement signed? Yes ___ Date: _____ No √

Engineering or Product Manager's Name (Type): *R. Bennett* Phone: *817 245-2363*

I attest to the accuracy of the above information.

Signature of Engineering or Product Manager (or higher): [signature] Date: 12/6/99

PAGING PRODUCTS GROUP — PATENT DISCLOSURE

PRIMARY INVENTOR:	Dorenbosch,	Jheroen	P	546 49 3308 / 10111727		Rich Bennett
	LAST (SURNAME)	FIRST	MIDDLE	SSN / Commerce ID		IMMEDIATE SUPVR.
HOME ADDRESS:	Rt. 1 Box 79F		Paradise	TX	76073	fjd007
	STREET		CITY	STATE	ZIP	E-MAIL ID
	NL BC996	(817) 245 2364		TX74 S 258		P
	CITIZENSHIP DEPT. NO.	OFC. PHONE	PAGER	LOC. CODE	MAIL STOP	SHIFT / EMPLOYEE STATUS

INVENTOR:	Mowry	Kevin	Curtis	10129073		Dwight Smith
	LAST (SURNAME)	FIRST	MIDDLE	SSN / Commerce ID		IMMEDIATE SUPVR.
HOME ADDRESS:	9703 Windy Hollow Drive		Irving	TX	75063	
	STREET		CITY	STATE	ZIP	E-MAIL ID
	USA NS504	52695		TX72 S147		P
	CITIZENSHIP DEPT. NO.	OFC. PHONE	PAGER	LOC. CODE	MAIL STOP	SHIFT / EMPLOYEE STATUS

INVENTOR:	NA					
	LAST (SURNAME)	FIRST	MIDDLE	SSN / Commerce ID		IMMEDIATE SUPVR.
HOME ADDRESS:						
	STREET		CITY	STATE	ZIP	E-MAIL ID
	CITIZENSHIP DEPT. NO.	OFC. PHONE	PAGER	LOC. CODE	MAIL STOP	SHIFT / EMPLOYEE STATUS

INVENTOR'S SIGNATURES:

INVENTOR'S FULL SIGNATURE	DATE
	12/5/00
INVENTOR'S FULL SIGNATURE	DATE
	12/5/00
INVENTOR'S FULL SIGNATURE	DATE

WITNESSES' NAMES AND SIGNATURES:

THE WITNESSES, IN SIGNING THIS FORM, ATTEST TO THE FACT THAT THEY UNDERSTAND THE INVENTION.

WITNESS'S FIRST/LAST NAME (TYPE)	PHONE	WITNESS'S FIRST/LAST NAME (TYPE)	PHONE
SOEREN THORSEN	5-1316	Jeff Coats	52721
WITNESS'S FULL SIGNATURE	DATE	WITNESS'S FULL SIGNATURE	DATE
Soren Thorsen	12/5/00		12/6/00

MOTOROLA

Security Classification
Motorola Confidential Proprietary
(When Completed)

MUST BE ACCOMPANIED BY A COMPLETED PATENT DISCLOSURE FORM

MOTOROLA PATENT COMMITTEE

PAGING PRODUCTS GROUP

DESIGN DISCLOSURE APPENDIX

Rev. F 6/23/00 SUBMITTED PURSUANT TO EMPLOYEE AGREEMENT

INTELLECTUAL PROPERTY DEPT. USE ONLY
DISCLOSURE NO. PF
DATE
PATENT COMMITTEE ACTION

The problem

PF02181NA *'Message bundling to optimize IM in circuit switched environment'* was combined with PF 2177, which was pursued. PF02181NA improves OTA efficiency by bundling downlink messages for IM. This bundling implies that often a message must be stored at the IM proxy/server and delayed to see if another message for the same mobile target will follow. This is particularly annoying when the number of participants in the conversation is two (Figure 1).

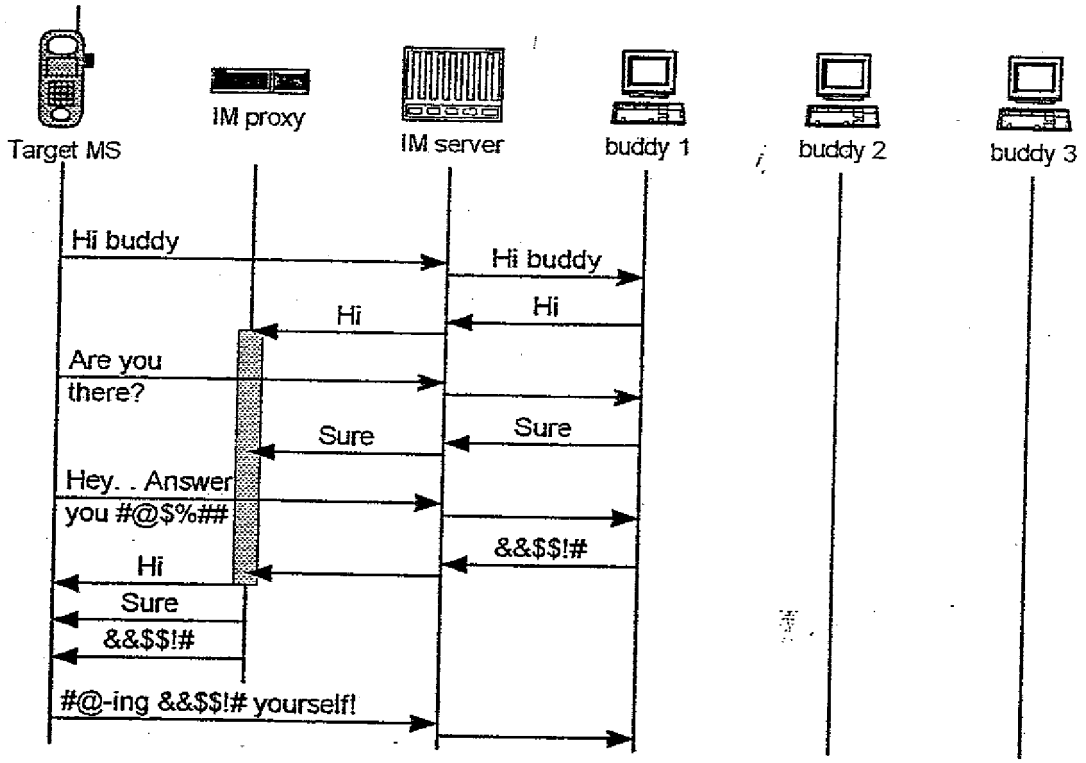


Figure 1. PF02181NA proposes to delay IM messages to a mobile device so that they can be bundled with later messages to the same target. This can be detrimental to a conversation between two parties.

What is needed is some smarts in the IM proxy/server to determine when bundling should be attempted.

Inventor: _____ Date: 12/5/00
Inventor: _____ Date: _____ Witness: _____ Date: 12/5/00
Inventor: _____ Date: 12/5/00 Witness: _____ Date: 12/6/00

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Security Classification
Motorola Confidential Proprietary
(When Completed)

MUST BE ACCOMPANIED BY A COMPLETED PATENT DISCLOSURE FORM

MOTOROLA PATENT COMMITTEE

PAGING PRODUCTS GROUP

DESIGN DISCLOSURE APPENDIX

Rev. F 6/23/00 SUBMITTED PURSUANT TO EMPLOYEE AGREEMENT

INTELLECTUAL PROPERTY DEPT. USE ONLY
DISCLOSURE NO. PF
DATE
PATENT COMMITTEE ACTION

The invention

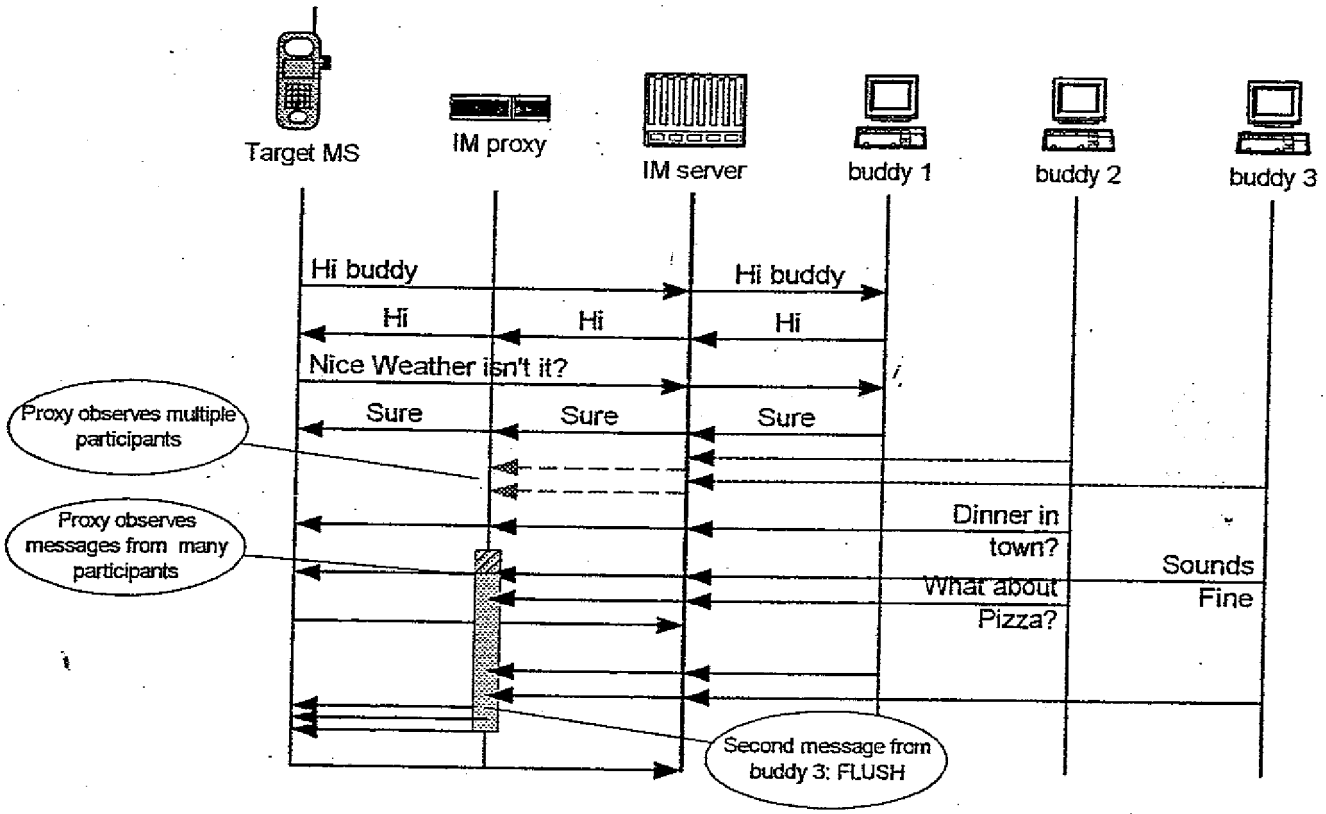

Figure 2. For the invention, the proxy monitors the number of participants, the message rate and the number of messages in the buffer from each participant to decide whether is will bundle or not and to decide on when to flush the buffer.

The invention is a method in the IM proxy/server that decides when to bundle IM messages for a mobile target.

The method uses several rules to start bundling:

1. Start bundling when more than K participants sent messages to the target within the last L seconds. (Example K = 5, L = 120)

Inventor:	[signature]	Date: 12/5/00			
Inventor:	[signature]	Date:	Witness: [signature]	Date:	12/5/00
Inventor:	[signature]	Date: 12/5/00	Witness: [signature]	Date:	12/6/00

MOTOROLA

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MOTOROLA PATENT COMMITTEE

PAGING PRODUCTS GROUP

DESIGN DISCLOSURE APPENDIX

Rev. F 6/23/00 SUBMITTED PURSUANT TO EMPLOYEE AGREEMENT

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DATE
PATENT COMMITTEE ACTION

2. Start bundling when more than M participants sent more than N messages within the last O seconds to the target.
(Example M=3, N=7, O=180)

The method further has rules on when to flush the buffer and forward the stored messages to the mobile target.

3. Send all stored messages to the mobile target when a participant for whom a message is stored sends a second message to the same target.
4. Flush the buffer when a predetermined number of messages is stored (PF01281NA only flushes after a predetermined time).
5. Flush when the total message size is over a threshold (A large message size would justify the associated overhed. One can flush, for example, when the stored messages fills the better part of an SMS message).
6. Flush the buffer sooner when the number of participants is lower.
7. Make the flush time depend on the load on the wireless system (light load -> early flush).
8. Make the flush time depend on the wishes of the user of the mobile target (more money, earlier flush).
9. Make the flush time depend on the wishes of the senders (more money, earlier flush).
10. Flush when the user obtains a data connection for other reasons.

The method further has rules on when to quit bundling (and flush the buffer if it contains messages):

11. Quit bundling when condition 1 and 2 are no longer true.
12. Quit bundling when the user obtains a data connection for other reasons.

User impact on bundling:

13. Quit bundling when the target indicates that it is not interested in bundling.
14. Start bundling when the user so indicates. Notify buddies that responses will be delayed.

Inventor:		Date: 12/5/00			
Inventor:		Date:	Witness:		Date: 12/5/00
Inventor:		Date: 12/5/00	Witness:		Date: 12/6/00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	09/855,385	Confirmation No.:	8937
Applicant(s):	Dorenbosch, Jheroen P., et al.	Examiner:	Mehrpour, Naghmeh
Filed:	May 15, 2001	Docket No.:	PF02177NA
TC/A.U.:	2617	Customer No.:	20280
Title:	INSTANT MESSAGE PROXY FOR CIRCUIT SWITCHED MOBILE ENVIRONMENT		

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. § 1.131

Sir:

The following Declaration and any attachments are to establish conception in the United States of claimed subject matter in the referenced patent application and diligence to the filing of the referenced patent application on May 15, 2001, from a date prior to the effective date of U.S. Patent Application Publication No. US2002/0147988A1 to Masahiro Nakano, filed in the United States on April 9, 2001, and relied upon by the Examiner to support rejections under 35 U.S.C. 103(a) in the Office Action dated July 11, 2006.

In support of this declaration, we, Jheroen P. Dorenbosch of Paradise, Texas, and Kevin C. Mowry of Irving, Texas, declare and sayeth the following:

That we conceived the claimed subject matter of the referenced patent application in the United States before April 9, 2001, which is prior to the effective date of United States Patent Publication No. US2002/0147988A1 (Nakano), in the course of employment by Motorola Inc., the assignee of the instant application by virtue of an assignment duly recorded on the Official record of the United States Patent & Trademark Office, REEL/FRAME 011815/0457.

That the claimed subject matters of the referenced patent application were the subjects of written invention disclosures prepared and executed after conception on October 24, 2000; October 27, 2000; and December 5, 2000; and that the invention disclosures were subsequently submitted to a Patent Committee of Motorola Inc., the assignee of record for consideration and assignment to a patent attorney for preparation and filing of a patent application.

That each of the dates redacted from the disclosure attached hereto is prior to the effective dates of United States Patent Publication No. US2002/0147988A1 (Nakano).

That on information and belief a patent application was prepared and filed, in due course upon, in the United Stated Patent Office on May 15, 2001, by or on behalf of Motorola Inc.

That all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

JHEROEN P. DORENBOSCH DATE

STATE OF)
ss:
COUNTY OF)

The undersigned Notary Public in and for the County and State aforesaid, do hereby certify that Jheroen P. Dorenbosch whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that they signed, sealed and delivered the instrument as their free and voluntary act and deed for the uses and purposes therein set forth.

Given under my hand and notarial seal this _____ day of _____, 2006.

My commission expires:

Notary Public Signature

Printed Name of Notary Public

Kevin C. Mowry DATE 11/28/07

STATE OF)
ss:
COUNTY OF)

The undersigned Notary Public in and for the County and State aforesaid, do hereby certify that Kevin C. Mowry whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that they signed, sealed and delivered the instrument as their free and voluntary act and deed for the uses and purposes therein set forth.

Given under my hand and notarial seal this 28th day of November, 2006.

My commission expires:

PAT CHRISTLEY
Notary Public
STATE OF TEXAS
My Comm. Exp. Dec 3, 2008

Notary Public Signature

Pat Christley
Printed Name of Notary Public

Wireless Instant Messaging STU

MOTOROLA FORT WORTH

Utility Patent Disclosure

UTILITY Disclosure For Patent Committee Review

Submitted Pursuant To Employment Agreement

MOTOROLA PATENT COMMITTEE

Rev. 0.1 12/13/99

Intellectual Property Dept. Use Only

Discl. # PF21770A

Discl. Date

Committee Action 10-25-00

THIS SECTION TO BE COMPLETED BY INVENTOR(S)

1. Name of Invention: Store and forward mechanism for Instant Messaging
2. Documentation Date: Oct 24, 2000
   (Attach log sheets, drawings, etc., to support the earliest date you documented your idea.)
3. Whom did you first tell about your invention?
   Name: xxx Date: xxx
4. Is this disclosure being submitted as an Ornamental Design Disclosure? Yes/No NO
   If YES, please attach a completed Ornamental Design Disclosure Form along with this disclosure.
5. What problem is solved by this invention? (Attach additional sheets if necessary.)
   IM utilizes a best-effort delivery mechanism. If the client is available the message is delivered, otherwise the message is dropped. In a mobile environment, the client may be temporarily out of service. What is the appropriate store and forward mechanism for IM that accounts for temporary unavailability, yet maintains the near real-time chat aspect that defines IM?
6. Identify related technology. (Attach additional sheets if necessary.)
   Email is the extreme case, in which clients log in and "pull" messages.
7. Describe the invention, and how it solves the problem(s) in a way not accomplished before. Attach additional sheets describing the invention in detail.
   See attached.

THIS SECTION TO BE COMPLETED BY ENGINEERING MGR OR HIGHER

1. Product invention is to be used on.(If a process, name the 1st product the process is to be used on.) n/a
2. This product will be (has been) offered for sale, quoted to a customer, or shipped. Yes/No NO If YES, indicate the earliest date any of these will (have) occur(red). xxx
3. This invention is to be(has been) disclosed outside Motorola: Yes/No NO
   If YES, indicate the date xxx and the other party. xxx
4. Was a non-disclosure agreement in place covering the admitted disclosure? Yes/No xxx
5. Name of Engineering Manager (or higher) who attests to the accuracy of this section:

Typed: xxx Steven E. Trine (817)245-2572

Phone: xxx Signature: Steven E. Trine Date: 10/24/2000

ALL BLANKS MUST BE COMPLETED AND ALL ADDITIONAL SHEETS MUST BE SIGNED & DATED BY ALL INVENTORS AND TWO WITNESSES

MOTOROLA FORT WORTH

Utility Patent Disclosure

Primary Inventor:

Last Name:	First Name:	Middle Name:	Social Security #	Commerce ID #
Mowyr Mowry	**Kevin**	**Curtis**	**519-08-8038**	**10129073**

Home Address: Street;	City;	State;	Zip;	Citizenship:
9703 Windy HollowDrive	**Irving**	**TX**	**75063**	**USA**

Dept. #:	Office Phone #:	*Location Code:	MailStop:	Shift:	Status:	Employee Immediate Supervisor:
NS504	**817.245.2695**	**TX72**	**S147**	**A**		**Dwight Smith**

INVENTOR'S FULL SIGNATURE — DATE: 10/24/00

Inventor:

Last Name:	First Name:	Middle Name:	Social Security #	Commerce ID #
XXX	**XXX**	**XXX**	**XXX-XX-XXX**	**XXXXXXX**

Home Address: Street;	City;	State;	Zip;	Citizenship:
XXX	**XXX**	**XXX**	**XXX**	**XXX**

Dept. #:	Office Phone #:	Location Code:	MailStop:	Shift:	Status:	Employee Immediate Supervisor:
XXX	**XXX.XXX.XXXX**	**XXXX**	**XXXX**	**X**	**XXX**	**XXX**

INVENTOR'S FULL SIGNATURE — DATE

Inventor:

Last Name:	First Name:	Middle Name:	Social Security #	Commerce ID #
XXX	**XXX**	**XXX**	**XXX-XX-XXX**	**XXXXXXX**

Home Address: Street;	City;	State;	Zip;	Citizenship:
XXX	**XXX**	**XXX**	**XXX**	**XXX**

Dept. #:	Office Phone #:	Location Code:	MailStop:	Shift:	Status:	Employee Immediate Supervisor:
XXX	**XXX.XXX.XXXX**	**XXXX**	**XXXX**	**X**	**XXX**	**XXX**

INVENTOR'S FULL SIGNATURE — DATE

WITNESS NAMES & SIGNATURES:

The witnesses, in signing this form, attest to the fact that they understand the invention.

WITNESS NAME (PRINTED or TYPED)	PHONE	WITNESS SIGNATURE	DATE
W. Garland Phillips	52388		10/24/00
WITNESS NAME (PRINTED or TYPED)	PHONE	WITNESS SIGNATURE	DATE
SOEREN THOMSEN	5-2316		10/24/00

MOTOROLA FORT WORTH

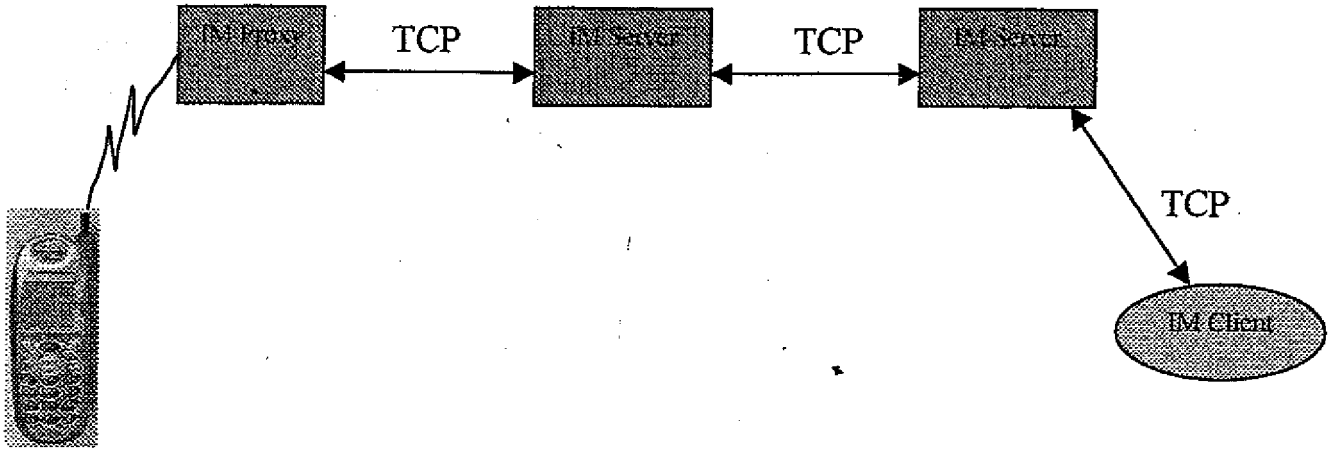
Utility Patent Disclosure

Problem Description

IM utilizes a best-effort delivery mechanism. If the client is available the message is delivered, otherwise the message is dropped. In a mobile environment, the client may be temporarily out of service. What is the appropriate store and forward mechanism for IM that accounts for temporary unavailability, yet maintains the near real-time chat aspect that defines IM?

Proposed Solution

The IM Proxy registers with an IM server on behalf of a mobile client. It receives instant messages and sends them over the air to the mobile client. Instant messages sent from the mobile client go through the IM proxy to the recipient.



The IM Proxy maintains the client's availability status. That is, when the use starts the IM client, the proxy reflects the AVAILABLE status. When the user manually changes status, e.g. to OFFLINE, the proxy reflects that. The user's buddies use the client status to determine if the user can participate in a chat session.

The proxy will not know if the client is roaming or out of service, because the client will not have the opportunity to register a change in status with the proxy before dropping out of service. In this case, the proxy will only know the client is offline when an instant message comes in and the proxy tries to send that message to the mobile client.

Normal IM behavior would suggest that the message be dropped in this scenario, however the mobile client may simply be going in and out of service because the user is driving down the freeway. A preferred behavior would be for the proxy to resend the message a programmable number of times before dropping the message. After dropping a programmable number of messages, the proxy should automatically change the client status to OFFLINE so the user's buddies will know the user is no longer receiving messages.

The number of retries would likely be based on system latency. The number of dropped messages (used to determine an automatic status change) would probably be provisioned for each user, or class of users, based on network reliability, location, usage habits, etc.

Signatures

Inventor	10/24/00 Date	Witness	10/24/00 Date
Inventor	Date	Witness	10/24/00 Date
Inventor	Date		

MOTOROLA FORT WORTH

Utility Patent Disclosure

UTILITY Disclosure For Patent Committee Review

Submitted Pursuant To Employment Agreement

MOTOROLA PATENT COMMITTEE

Rev. 0.1 12/13/99

Intellectual Property Dept. Use Only	
Discl. #	PF 2181 NA
Discl. Date	
Committee Action	10-30-00

THIS SECTION TO BE COMPLETED BY INVENTOR(S)

1. Name of Invention: Message bundling to optimize IM in circuit switched environment
2. Documentation Date: Oct 27, 2000
   (Attach log sheets, drawings, etc., to support the earliest date you documented your idea.)
3. Whom did you first tell about your invention?
   Name: Soeren Thomsen Date: Oct 26, 2000
4. Is this disclosure being submitted as an Ornamental Design Disclosure? Yes/No No
   If YES, please attach a completed Ornamental Design Disclosure Form along with this disclosure.
5. What problem is solved by this invention? (Attach additional sheets if necessary.)
   In a circuit switched cellular network, the mobile IM client must establish a connection with the IM server (or proxy) to send and receive messages. It is cost prohibitive to maintain an open connection for the duration of the IM chat. A mechanism is needed to optimize message retrieval for a circuit switch network such that a connection is established only when messages are available for retrieval.
6. Identify related technology. (Attach additional sheets if necessary.)
   xxx
7. Describe the invention, and how it solves the problem(s) in a way not accomplished before. Attach additional sheets describing the invention in detail.
   See attached.

THIS SECTION TO BE COMPLETED BY ENGINEERING MGR OR HIGHER

1. Product invention is to be used on.(If a process, name the 1st product the process is to be used on.) xxx
2. This product will be (has been) offered for sale, quoted to a customer, or shipped. Yes/No xxx If YES, indicate the earliest date any of these will (have) occur(red). xxx
3. This invention is to be(has been) disclosed outside Motorola: Yes/No xxx
   If YES, indicate the date xxx and the other party. xxx
4. Was a non-disclosure agreement in place covering the admitted disclosure? Yes/No xxx
5. Name of Engineering Manager (or higher) who attests to the accuracy of this section:

Typed: Steven Trine
Phone: 817-245-2572 Signature: Steven E. Trine Date: Oct 30, 2000

MOTOROLA FORT WORTH

Utility Patent Disclosure

Primary Inventor:

Last Name:	First Name:	Middle Name:	Social Security #	Commerce ID #
Mowry	Kevin	Curtis	519088038	10129073

Home Address: Street;	City;	State;	Zip;	Citizenship:
9703 Windy Hollow Drive	Irving	TX	75063	USA

Dept. #:	Office Phone #:	Location Code:	MailStop:	Shift:	Status:	Employee Immediate Supervisor:
NS504	817-245-2695	TX72	S147	A	Full	Dwight Smith

INVENTOR'S FULL SIGNATURE DATE 10/27/00

Inventor:

Last Name:	First Name:	Middle Name:	Social Security #	Commerce ID #
XXX	XXX	XXX	XXX-XX-XXX	XXXXXXXX

Home Address: Street;	City;	State;	Zip;	Citizenship:
XXX	XXX	XXX	XXX	XXX

Dept. #:	Office Phone #:	Location Code:	MailStop:	Shift:	Status:	Employee Immediate Supervisor:
XXX	XXX.XXX.XXXX	XXXX	XXXX	X	XXX	XXX

INVENTOR'S FULL SIGNATURE DATE

Inventor:

Last Name:	First Name:	Middle Name:	Social Security #	Commerce ID #
XXX	XXX	XXX	XXX-XX-XXX	XXXXXXXX

Home Address: Street;	City;	State;	Zip;	Citizenship:
XXX	XXX	XXX	XXX	XXX

Dept. #:	Office Phone #:	Location Code:	MailStop:	Shift:	Status:	Employee Immediate Supervisor:
XXX	XXX.XXX.XXXX	XXXX	XXXX	X	XXX	XXX

INVENTOR'S FULL SIGNATURE DATE

WITNESS NAMES & SIGNATURES:

The witnesses, in signing this form, attest to the fact that they understand the invention.

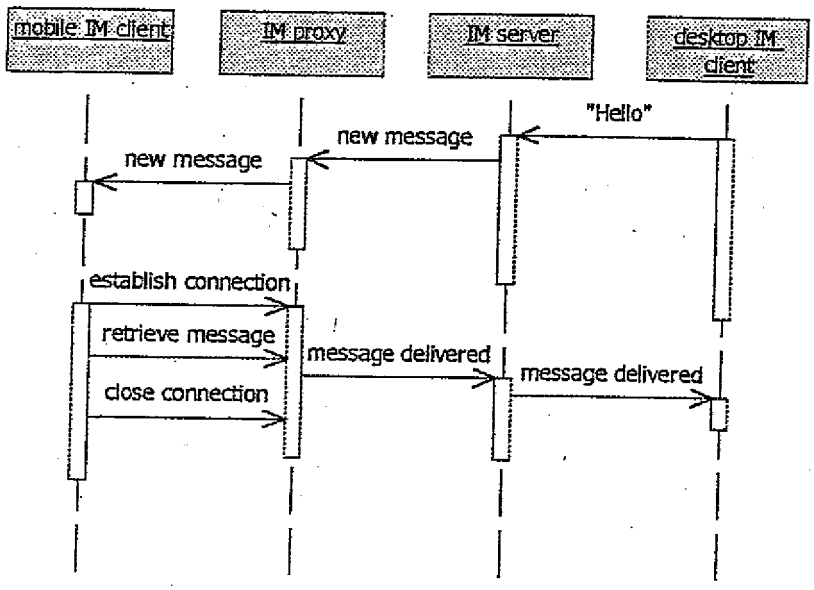
WITNESS NAME (PRINTED or TYPED)	PHONE	WITNESS SIGNATURE	DATE
W. Garland Phillips	52385		10/27/00
WITNESS NAME (PRINTED or TYPED)	PHONE	WITNESS SIGNATURE	DATE
Soren Thomsen	52316		10/27/00

MOTOROLA FORT WORTH

Utility Patent Disclosure

Proposed Solution

In a mobile IM environment, a proxy registers with the IM server on behalf of the mobile IM client. The proxy provides the current presence information of the mobile client to other IM users. The proxy also notifies the mobile client when messages are available for download. In a circuit switched cellular network, the message retrieval would look something like this:



In a circuit switched cellular network, there is considerable delay in setting up a connection and it is cost prohibitive to maintain an open connection for the duration of the chat. To address these problems, the IM proxy could bundle the messages so the user only needs to establish a connection when there are multiple messages to be downloaded, or when a message has been queued for a certain amount of time. So we have two scenarios:

Scenario 1

- The mobile user is in a chat session with several friends.
- The friends send three messages that are queued by the IM proxy.
- The friends immediately send five more messages.
- The IM proxy exceeded its limit of five messages so it notifies the mobile user that messages are available
- The mobile user establishes a connection and retrieves the messages

Signatures

Inventor Date

Inventor Date

Inventor Date

Witness Date 10/27/00

Witness Date 10/27/00

MOTOROLA FORT WORTH

Utility Patent Disclosure

Scenario 2

- The conversation is starting to die down.
- The friends send three messages
- After two minutes, no more messages arrive.
- The proxy time limit is exceeded so it notifies the mobile user that messages are available
- The mobile user establishes a connection and retrieves the messages

The number of messages to be queued prior to notification and the time limit for message storage would be configurable in the proxy. They would probably be provisioned on a per-user basis based on the cost and latency that the user is willing to incur.

The latency added by this approach would need to be indicated to the senders to set their expectations. This indication, likely a visual one, is being addressed in a separate disclosure.

Signatures

Inventor	10/27/00 Date	Witness	10/27/00 Date
Inventor	Date	Witness	10/27/00 Date
Inventor	Date		

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Security Classification
Motorola Confidential Proprietary
(When Completed)

OF COPIES NEEDED
AFTER A # IS ASSIGNED ____

MOTOROLA PATENT COMMITTEE

PAGING PRODUCTS GROUP
PATENT DISCLOSURE

Rev. P 6/23/00 SUBMITTED PURSUANT TO EMPLOYEE AGREEMENT

INTELLECTUAL PROPERTY DEPT. USE ONLY
DISCLOSURE NO. PF 2663 NA
DATE 12-6-00
PATENT COMMITTEE ACTION

THIS SECTION TO BE COMPLETED BY INVENTOR(S)

1. Name of invention:
   Smart Bulk Download for IM
2. Documentation Date:
   this disclosure
3. Whom did you first tell about your invention? Name: *Kevin Mowry* Date: *11/29/2000*
4. Is this disclosure being submitted as a Design disclosure? Yes___ No√___
5. What problem is solved by this invention?
   Bulking up IM unacceptably slows down IM between a small number of participants
6. What is the closest known technology?
   PF02181NA Message bundling to optimize IM in circuit switched environment
7. What is this invention?
   The invention adds smarts to the IM Proxy/Server to only bundle IM messages when there is a high message rate and there are a large number of participants.

THIS SECTION TO BE COMPLETED BY AN ENGINEERING OR PRODUCT MANAGER (or higher) ONLY

Product to be used in/on: (If a process, name the first product the process was/is to be used on.)
IM infrastructure coupled to wireless infrastructure

Has/Is/Will this product been/being/be offered for sale? Have products incorporating this invention been described, quoted, or demonstrated to a customer? Have orders been accepted for the product? Explain the circumstances.)
Not offered for sale yet.

If so, when was/will the first offer for sale of a product incorporating this invention (be) made?
Date: *NA*

When is the estimated ship date? *NA*

When was/will the first disclosure outside of Motorola (be) made?

How will the disclosure be made (state title and date of publication, if any) and to whom?

Was a non-disclosure agreement signed? Yes ___ Date: _____ No _V_

Engineering or Product Manager's Name (Type): *R. Bennett* Phone: *817 245-2363*

I attest to the accuracy of the above information.

Signature of Engineering or Product Manager (or higher): [signature] Date: 12/6/99

PAGING PRODUCTS GROUP — PATENT DISCLOSURE

PRIMARY INVENTOR:	Dorenbosch,	Jheroen	P	546 49 3308 / 10111727		Rich Bennett
	LAST (SURNAME)	FIRST	MIDDLE	SSN / Commerce ID		IMMEDIATE SUPVR.
HOME ADDRESS:	Rt. 1 Box 79F		Paradise	TX	76073	fjd007
	STREET		CITY	STATE	ZIP	E-MAIL ID
	NL BC996	(817) 245 2364		TX74 S 258		P
	CITIZENSHIP DEPT. NO.	OFC. PHONE	PAGER	LOC. CODE	MAIL STOP	SHIFT / EMPLOYEE STATUS

INVENTOR:	Mowry	Kevin	Curtis	10129073		Dwight Smith
	LAST (SURNAME)	FIRST	MIDDLE	SSN / Commerce ID		IMMEDIATE SUPVR.
HOME ADDRESS:	9703 Windy Hollow Drive		Irving	TX	75063	
	STREET		CITY	STATE	ZIP	E-MAIL ID
	USA NS504	52695		TX72 S147		P
	CITIZENSHIP DEPT. NO.	OFC. PHONE	PAGER	LOC. CODE	MAIL STOP	SHIFT / EMPLOYEE STATUS

INVENTOR:	NA					
	LAST (SURNAME)	FIRST	MIDDLE	SSN / Commerce ID		IMMEDIATE SUPVR.
HOME ADDRESS:						
	STREET		CITY	STATE	ZIP	E-MAIL ID
	CITIZENSHIP DEPT. NO.	OFC. PHONE	PAGER	LOC. CODE	MAIL STOP	SHIFT / EMPLOYEE STATUS

INVENTOR'S SIGNATURES:

INVENTOR'S FULL SIGNATURE	DATE 12/5/00
INVENTOR'S FULL SIGNATURE	DATE 12/5/00
INVENTOR'S FULL SIGNATURE	DATE

WITNESSES' NAMES AND SIGNATURES:

THE WITNESSES, IN SIGNING THIS FORM, ATTEST TO THE FACT THAT THEY UNDERSTAND THE INVENTION.

WITNESS'S FIRST/LAST NAME (TYPE)	PHONE	WITNESS'S FIRST/LAST NAME (TYPE)	PHONE
SOREN THOMSEN	5-1316	Jeff Coats	52721
WITNESS'S FULL SIGNATURE	DATE	WITNESS'S FULL SIGNATURE	DATE
Soren Thomsen	12/5/00		12/6/00

MOTOROLA

Security Classification
Motorola Confidential Proprietary
(When Completed)

MUST BE ACCOMPANIED BY A COMPLETED PATENT DISCLOSURE FORM

MOTOROLA PATENT COMMITTEE

PAGING PRODUCTS GROUP

DESIGN DISCLOSURE APPENDIX

Rev. F 8/23/00 SUBMITTED PURSUANT TO EMPLOYEE AGREEMENT

INTELLECTUAL PROPERTY DEPT. USE ONLY
DISCLOSURE NO. PF
DATE
PATENT COMMITTEE ACTION

The problem

PF02181NA *'Message bundling to optimize IM in circuit switched environment'* was combined with PF 2177, which was pursued. PF02181NA improves OTA efficiency by bundling downlink messages for IM. This bundling implies that often a message must be stored at the IM proxy/server and delayed to see if another message for the same mobile target will follow. This is particularly annoying when the number of participants in the conversation is two (Figure 1).

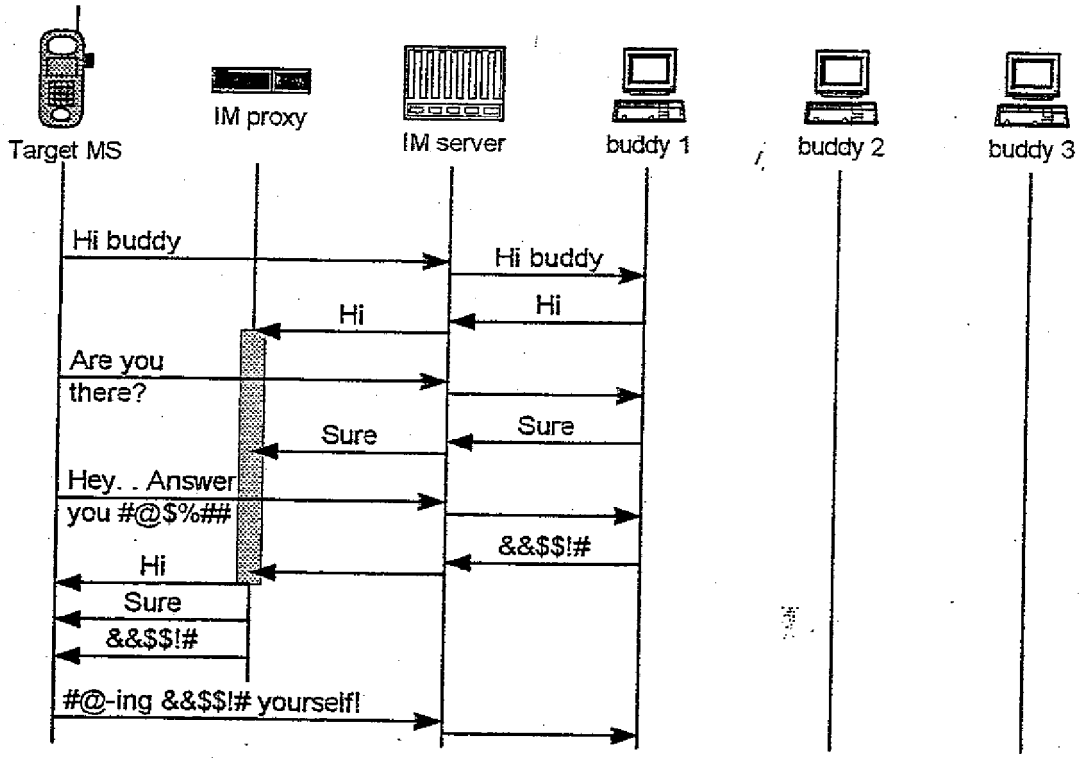

Figure 1. PF02181NA proposes to delay IM messages to a mobile device so that they can be bundled with later messages to the same target. This can be detrimental to a conversation between two parties.

What is needed is some smarts in the IM proxy/server to determine when bundling should be attempted.

Inventor: _____ Date: 12/5/00
Inventor: _____ Date: _____ Witness: _____ Date: 12/5/00
Inventor: _____ Date: 12/5/00 Witness: _____ Date: 12/6/00

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Security Classification
Motorola Confidential Proprietary
(When Completed)

MUST BE ACCOMPANIED BY A COMPLETED PATENT DISCLOSURE FORM

MOTOROLA PATENT COMMITTEE

PAGING PRODUCTS GROUP

DESIGN DISCLOSURE APPENDIX

Rev. F 8/23/00 SUBMITTED PURSUANT TO EMPLOYEE AGREEMENT

INTELLECTUAL PROPERTY DEPT. USE ONLY:
DISCLOSURE NO. PF
DATE
PATENT COMMITTEE ACTION

The invention

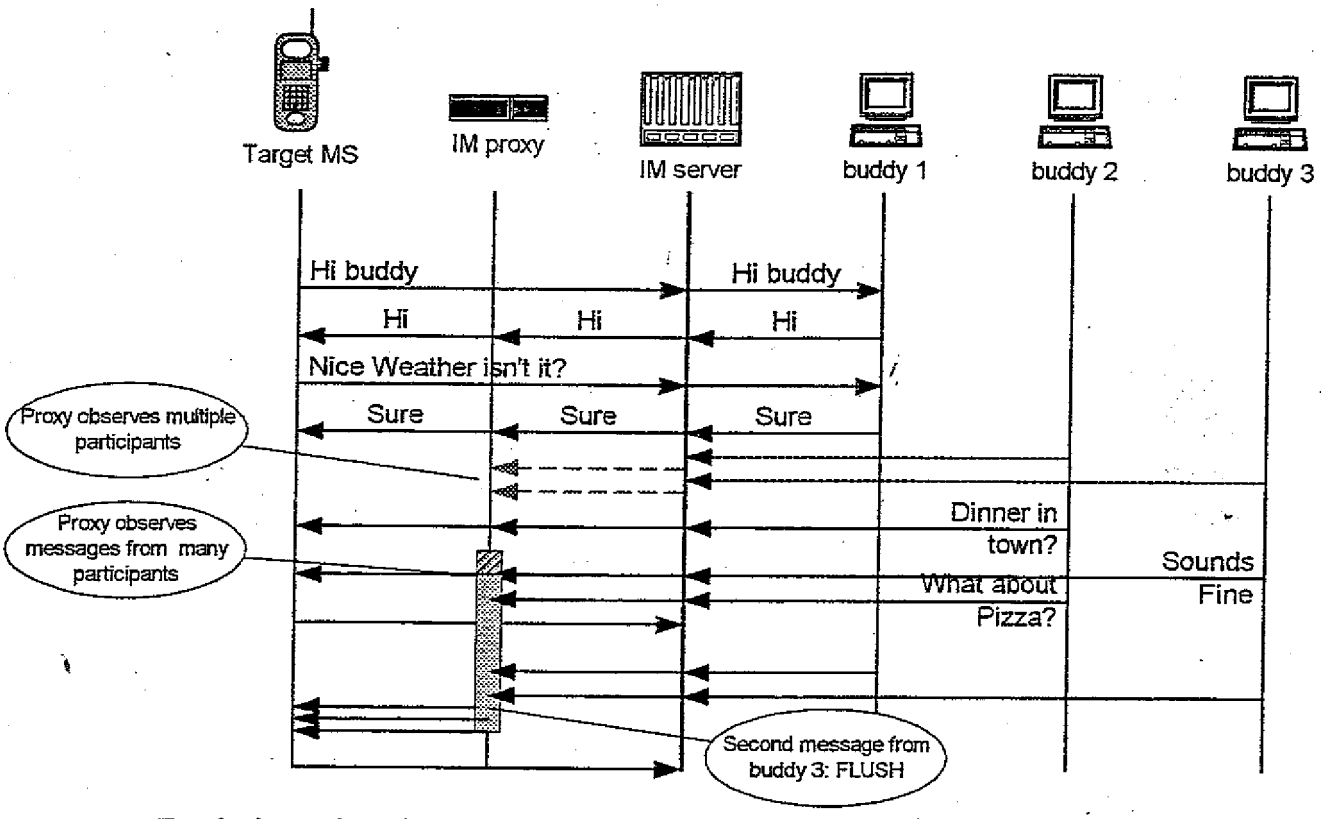

Figure 2. For the invention, the proxy monitors the number of participants, the message rate and the number of messages in the buffer from each participant to decide whether is will bundle or not and to decide on when to flush the buffer.

The invention is a method in the IM proxy/server that decides when to bundle IM messages for a mobile target.

The method uses several rules to start bundling:

1. Start bundling when more than K participants sent messages to the target within the last L seconds. (Example K = 5, L = 120)

Inventor:		Date: 12/5/00			
Inventor:		Date:	Witness: Silvia Thomson	Date: 12/5/00	
Inventor:		Date: 12/5/00	Witness:	Date: 12/6/00	

MOTOROLA

Security Classification
Motorola Confidential Proprietary
(When Completed)

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MOTOROLA PATENT COMMITTEE

PAGING PRODUCTS GROUP

DESIGN DISCLOSURE APPENDIX

Rev. F 6/23/00 SUBMITTED PURSUANT TO EMPLOYEE AGREEMENT

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DISCLOSURE NO. PF
DATE
PATENT COMMITTEE ACTION

2. Start bundling when more than M participants sent more than N messages within the last O seconds to the target.
   (Example M=3, N=7, O=180)

The method further has rules on when to flush the buffer and forward the stored messages to the mobile target.

3. Send all stored messages to the mobile target when a participant for whom a message is stored sends a second message to the same target.
4. Flush the buffer when a predetermined number of messages is stored (PF01281NA only flushes after a predetermined time).
5. Flush when the total message size is over a threshold (A large message size would justify the associated overhed. One can flush, for example, when the stored messages fills the better part of an SMS message).
6. Flush the buffer sooner when the number of participants is lower.
7. Make the flush time depend on the load on the wireless system (light load -> early flush).
8. Make the flush time depend on the wishes of the user of the mobile target (more money, earlier flush).
9. Make the flush time depend on the wishes of the senders (more money, earlier flush).
10. Flush when the user obtains a data connection for other reasons.

The method further has rules on when to quit bundling (and flush the buffer if it contains messages):

11. Quit bundling when condition 1 and 2 are no longer true.
12. Quit bundling when the user obtains a data connection for other reasons.

User impact on bundling:

13. Quit bundling when the target indicates that it is not interested in bundling.
14. Start bundling when the user so indicates. Notify buddies that responses will be delayed.

Inventor:		Date: 12/5/00			
Inventor:		Date:	Witness: Sivan Thomson	Date: 12/5/00	
Inventor:		Date: 12/5/00	Witness:	Date: 12/6/00	